

31

| | | | |
|-------------------------------|------------------|----------------------|--|
| Notice of Allowability | Application No. | Applicant(s) | |
| | 10/564,049 | HARVEY, PAUL ROYSTON | |
| | Examiner | Art Unit | |
| | Megann E. Vaughn | 2859 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 1/10/2007.
2. ☒ The allowed claim(s) is/are 19-33.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____ 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____ |
|--|---|

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

A) Replace "shop" on line 20 of claim 19 of the 1/10/2007 amendment with ---shot.

Allowable Subject Matter

2. Claims 19-33 are allowed.
3. The following is an examiner's statement of reasons for allowance:

Claims 19-22 are allowable over the prior art of record because the prior art of record does not teach or disclose a method of correcting magnetic field drift in a magnetic resonance imaging apparatus, the method comprising performing a second single shot EPI sequence in which a second excitation pulse induces a following second magnetic resonance signal including a series of magnetic resonance echoes with a series of different phase encoding, one of them with a zero phase encoding, the zero phase-encoded being timed to occur at said preselected time interval after the second excitation, determining a second phase of the second magnetic resonance signal at said preselected time interval after the second excitation, determining a difference

Art Unit: 2859

between the first and second determined phases, in combination with the remaining limitations of the claims.

Claims 23-31 are allowable over the prior art of record because the prior art of record does not teach or disclose a method of monitoring magnetic field drift in a magnetic resonance imaging apparatus, the method comprising performing a second gradient echo data sequence in which a second excitation pulse is applied followed by a series of magnetic resonance echoes, a magnetic resonance echo at the preselected time interval after the second excitation being given zero phase encoding, determining a second phase of a second magnetic resonance signal induced by the second excitation at the preselected time interval after the second excitation during the echo given zero phase encoding, comparing the first and second determined phases, in combination with the remaining limitations of the claims.

Claims 32-33 are allowable over the prior art of record because the prior art of record does not teach or disclose a computer readable storage medium having stored thereon a computer program including instruction which, when executed by a computer of a magnetic resonance system, causes performing a second single shot magnetic resonance sequence in which a second excitation pulsed is applied followed by a second magnetic field including a series of magnetic resonance echoes, an echo with zero induced phase encoding is caused to occur at the selected time interval after the second excitation such that both the first and second magnetic resonance signals have echoes with zero induced encoding the same selected time after the corresponding excitation pulse, in combination with the remaining limitations of the claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Miyawaki et al (US 2005/0218894).
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Megann E. Vaughn whose telephone number is 571-272-8927. The examiner can normally be reached on 8 am- 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Art Unit: 2859

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MEV

Patent Examiner Art Unit 2859

3/27/2007



Diego Gutierrez
Supervisory Patent Examiner
Technology Center 2800